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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,232	07/31/2003	John E. Schreiber	Serie 6041	2544
7590 03/20/2006				
Air Liquide Suite 1800 2700 Post Oak Blvd. Houston, TX 77056			EXAMINER DOERRLER, WILLIAM CHARLES	
			ART UNIT 3744	PAPER NUMBER

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,232	SCHREIBER ET AL.	
	Examiner	Art Unit	
	William C. Doerrler	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-30 and 45-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-30 and 45-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1-17-2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14-18 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by the '896 Japanese reference from the IDS.

The '896 Japanese reference discloses a system for entraining gaseous ozone into liquid carbon dioxide and then solidifying the carbon dioxide. Line 15 of page 552 of the reference states that compressed ozone may be injected into liquid carbon dioxide. The 5.3 atm minimum pressure of the example converts to 77.9 psi. Since this is a minimum pressure, all claimed pressures are seen as met. The limitation of claim 18 is claimed as optional, so this claim is seen as fully met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19-27,45-47,49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '896 Japanese reference from the IDS in view of Hyde (5,426,948).

The Japanese '896 Japanese reference discloses applicants' basic inventive concept, a method for forming dry ice with entrained ozone, substantially as claimed with the exception of forming the dry ice into blocks or pellets. Hyde a dry ice forming machine that expands liquid carbon dioxide to form dry ice which may be pressed into blocks or pellets. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Hyde to modify the dry ice system of the '896 Japanese reference by forming the produced solid carbon dioxide into blocks or pellets to provide the size and shape that best fits the requirements of many different situations. Brill shows contacting liquid about to be frozen to form solid blocks used for refrigerating with gaseous ozone to keep the resulting solid free of microbial growth to be old in the refrigeration art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Brill to modify the dry ice forming process of Hyde by injecting gaseous ozone into the liquid before solidification

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to provide a solid which will provide refrigeration as well as reduce the growth of microbes in the cooled area or substance. In regard to claim 22, the pressure of the liquid carbon dioxide is not given in Hyde, but is seen as a matter of obvious design choice for an ordinary practitioner in the art since it is well known that the liquid need to be pressurized, but overpressurization will result in wasted energy. In regard to claims 25,26 and 49, the provision of high pressure liquid carbon dioxide which is expanded either prior to or during the entrainment of the ozone is seen as obvious design choice for an ordinary practitioner to maximize the entrainment while preserving safety in a system which may accept products at various pressures which are convenient for the transport of the products, not the reactions that they will be used for.

Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyde in view of Slattery.

Hyde discloses applicants' basic inventive concept, a dry ice forming machine that expands liquid carbon dioxide to form dry ice which may be pressed into blocks or pellets, substantially as claimed with the exception of contacting the solid formed with gaseous ozone. Slattery shows contacting solid blocks used for refrigerating with gaseous ozone to keep the solid free of microbial growth to be sold in the refrigeration art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Slattery to modify the dry ice forming process of Hyde by injecting gaseous ozone into solid to reduce the growth of microbes in the cooled area or substance. Slattery does not state the pressure of the gas containing ozone. However, the top of column 4 states that the solid is moved due to the gas

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pressure. Applicant's claimed pressure is seen as a matter of design choice given that the pressure must be high enough to move the frozen solid vertically.

Response to Arguments

Applicant's arguments with respect to claims 14-27 have been considered but are moot in view of the new ground(s) of rejection. The Japanese reference shows contacting liquid to be solidified and solidified with ozone to reduce microbial growth. In regard to claims 28-30 it is noted that line 43 of column 2 of Slattery states that the ozone can be continuously injected, even when the ice is being transported. When combined with the solid carbon dioxide of Hyde, one obtains applicants' process of entraining the ozone, even if it is not the initial purpose of the ozone.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William C Doerrler
Primary Examiner
Art Unit 3744

WCD